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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,022	09/12/2003	Daniel C. Edelstein	YOR920030262US1 (16785)	8703
23389	7590	03/22/2005	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			LUK, OLIVIA T	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ER

Office Action Summary	Application No. 10/662,022	Applicant(s) EDELSTEIN ET AL.	
	Examiner Olivia T. Luk	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 10-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by M'Saad et al. (6,713,390 B2).

In re claim 1, M'Saad et al. discloses positioning a substrate **402** (col. 13, line 11) having an upper first layer of dielectric or conductive material (col. 14, line 4) in a reactor chamber **13** that is capable of generating a plasma (col. 13, lines 18-21); exposing said upper first layer to a surface preparation plasma for a first period of time (col. 14, lines 10-20); introducing precursors of a second layer to be deposited on the upper first layer for a second period of time, while the surface preparation plasma is active in the reactor; and stopping the surface pretreatment plasma at the end of the second period of time and adjusting plasma parameters for deposition of said second layer (col. 13, lines 26-46; col. 14, lines 50-65).

In re claim 2, M'Saad et al. discloses a plasma enhanced chemical vapor deposition reactor, a high-density plasma reactor, a sputtering chamber, or an ion beam chamber (col. 14, lines 54-55).

In re claim 3, M'Saad et al. discloses the first layer is a dielectric selected from the group consisting of silicon oxide, silicon nitride, silicon oxynitride, SiC, SiCH, SiCN, SiCHN, and SiCOH (col. 4, line 1).

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In re claim 4, M'Saad et al. discloses the second layer is a dielectric that is different from the first layer and is selected from the group consisting of silicon oxide, silicon nitride, silicon oxynitride, SiC, SiCH, SiCN, SiCHN, and SiCOH (col. 16, line 8).

In re claim 5, M'Saad et al. discloses the surface preparation plasma comprises a surface pretreatment gas selected from the group consisting of an inert gas, H₂, O₂, NH₃, SiH₄ and mixtures thereof (col. 3, lines 37-40)

In re claim 6, M'Saad et al. discloses the surface pretreatment gas further comprises F atoms (col. 7, lines 40-45).

In re claim 7, M'Saad et al. discloses the substrate is an interconnect structure (col. 1, lines 40-55).

In re claim 8, M'Saad et al. discloses the reactor comprises an RF power source for generating said plasmas (col. 14, lines 55-56).

In re claim 9, M'Saad et al. discloses the surface preparation plasma comprises Ar gas (col. 13, lines 36-38) and said second layer is a dielectric comprising Si, C, O and H (col. 16, line 8).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art not applied are considered state of the art in the area of semiconductor manufacture.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olivia T. Luk whose telephone number is 571-272-1676. The examiner can normally be reached on 8AM to 5PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OTL
March 15, 2005


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER